

REMARKS

This is in response to the Office Action dated January 18, 2006 and the Advisory Action dated April 26, 2006. In the Office Action, all pending claims 1-18, 23-41, 46-64, 69-77 and 82-111 were rejected. With this Amendment, claims 1, 23, 46 and 69 are amended and the remaining claims are unchanged in the application. Applicant respectfully requests reconsideration and allowance of all pending claims.

In section 2 of the Office Action, the Examiner rejected claims 1 and 4-5 under §102(b) as being anticipated Kellett et al., U.S. Patent No. 5,637,978.

Amended claim 1, which is directed to an apparatus for counteracting self discharge in a storage battery, includes "the charge supply battery comprises a small battery having a nominal voltage lower than that of the storage battery and having a fewer number of cells than the storage battery . . . and wherein the charge supply battery provides only a trickle charge to the storage battery via the DC-DC converter." (Emphasis Added.)

With regard to the charge supply battery, page 21, lines 10-18, of the specification state that:

Charge supply battery 14 is a "household" battery or "small" battery with 1.5 V cells (such as D, C, AA and AAA batteries) that can be readily purchased off the shelf. Thus, in embodiments of the present invention, charge supply battery 14 may be one or more "AA" alkaline batteries, one or more "C" alkaline batteries, one or more "D" alkaline batteries or one or more "AAA" alkaline batteries.

With regard to storage battery 12 that charge supply battery 14 protects, page 16, lines 15-25, of the specification state that:

In general, storage battery 12, that is protected from self-discharge using the self-discharge prevention technique of the present

invention, consists of a plurality of individual storage cells connected in series. Typically, each cell has a voltage potential of about 2.1 volts. By connecting the cells in series, the voltage of the individual cells are added in a cumulative manner. Thus, storage battery 12 may be a 6-cell battery (12.6V), a 12-cell battery (25.2V), an 18-cell battery (42V), a 24-cell battery (50.4V), etc.

Further, page 8, line 10, of the specification indicates that a trickle charge (a slow continuous charge for an electric battery (Webster's Third International Dictionary (1981)) is provided by the claimed apparatus.

The earlier-listed elements of claim 1, which are supported by the specification as indicated above, are not taught or suggested by the cited figure and language of Killett (FIG. 2 and column 4, lines 10-65). In FIG. 2 of Killett, charging battery 30 and vehicle battery 20 have an equal number of cells (6 cells). However, claim 1 requires "a small battery . . . having a fewer number of cells than the storage battery." Further, Kellett relates to an emergency battery charger for use in motor vehicles for charging a fully or partially discharged starter storage battery. One of the functions of the emergency battery charger of Kellett is to charge a "dead" starter storage battery. (With the emergency battery charger of the present invention, it will take 15 minutes or less to transfer enough energy to start a vehicle having a "dead" vehicle storage battery (see col. 6, lines 1-8 of Kellett)). To provide this charging function, charging battery 30 of Kellett is capable of providing a relatively high charging current to a "dead" vehicle battery. In contrast, the small battery of claim 1 provides only a trickle charge to the storage battery via the DC-DC converter.

In summary, Kellett does not teach or suggest "the charge supply battery comprises a small battery having a nominal

voltage lower than that of the storage battery and having a fewer number of cells than the storage battery . . . and wherein the small battery provides only a trickle charge to the storage battery via the DC-DC converter," as required by claim 1. Therefore, claim 1 is patentable and non-obvious over Kellett. Claims 4-5 are allowable at least by virtue of their dependence from allowable claim 1.

In section 4 of the Office Action, claims 2-3, 6-18 and 82-94 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kellett et al. in combination with Barrett (U.S. Patent # 5,684,678).

Claims 2 and 3 depend from claim 1 and therefore include all the limitations of claim 1. For reasons provided above, Kellett does not teach or suggest all the elements of claim 1. Barrett does not overcome the deficiencies of Kellett. Thus, claims 2 and 3 are allowable at least by virtue of their dependency from independent claim 1.

With regard to claims 6-18 and 82-94, the Office Action suggests that it would be obvious to replace the charge supply battery of Kellett with small batteries such as D, C, AA, AAA, etc. According to the Office Action, the suggestion for doing so is because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. However, the mere fact that the prior art system could be modified does not make such a modification obvious unless the prior art suggests the desirability of doing so. See, (*In re Gordon*), 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). As noted above, to provide a relatively rapid recharging function, the Kellett device includes an internal charging battery 30, which provides a relatively high charging current to a "dead" vehicle battery. In contrast, the present invention is directed to an apparatus for

counteracting self discharge in a storage battery (which provides only a trickle charge to the storage battery) and therefore employs "a charge supply battery" that is "a small battery," such as a D, C, AA, AAA, etc., battery. Such "small" charge supply batteries are clearly unsuitable and undesirable for the Kellett device and accordingly there is no teaching, suggestion or incentive in the Kellett reference for one of ordinary skill in the art to substitute a small battery for the relatively high current providing charging battery 30 of Kellett.

In section 5 of the Office Action, the Examiner rejected claims 23, 36-41, 46-51, 69, 72-77 and 95-111 under §103(a) as being unpatentable over Tomantschger, U.S. Patent No. 5,194,799 in combination with a paper published by Electronix Express, November 10, 1998 and further in combination with Bertness, U.S. Patent No. 6,249,124.

Tomantschger discloses a booster battery assembly having a booster battery that is not protected from self-discharge by a charge supply battery and a DC-DC converter. The Electronix Express published paper only describes, in general, the design and operation of DC-DC converters, and Bertness relates to an electronic battery tester with an internal battery. None of these references taken alone or in combination describe "a booster battery configured to provide starting energy to a vehicle; a charge supply battery configured to provide a supply voltage; and a DC-DC converter circuit having an input electrically coupled to the charge supply battery and an output electrically coupled to the booster battery; wherein the charge supply battery comprises a small battery having a nominal voltage lower than that of the booster battery and having a fewer number of cells than the booster battery; and wherein the DC-DC converter circuit is configured to provide a charging voltage at the output having a magnitude greater than a magnitude of the supply voltage, and wherein the small battery provides only a trickle charge to the

booster battery via the DC-DC converter" as required by claim 23. Furthermore, the Examiner provided no evidentiary basis for modifying the cited references to arrive at the present invention as claimed by claim 23. Therefore, the rejection of claim 25 must be withdrawn.

Independent claims 46 and 69 have elements similar to that of independent claim 23. Thus, for the same reasons as independent claim 23, Applicants submit that independent claims 46 and 69 are allowable as well. Moreover, Applicants respectfully submit that the dependent claims are also allowable by virtue of their dependency, either directly or indirectly from the allowable independent claims. Further, the dependent claims set forth numerous elements not shown or suggested in the prior art.

In view of the foregoing, Applicants respectfully request reconsideration and allowance of all pending claims 1-18, 23-41, 46-64, 69-77 and 82-111. Favorable action upon all claims is solicited.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,
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